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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,440	06/21/2001	David Landelle	P07266US00/RFH	2728

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ALEXANDRIA, VA 22314

EXAMINER

TRAN, TRANG U

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/885,440

Applicant(s)

LANDELLE ET AL.

Examiner

Trang U. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 3-4 recite the limitation "the nearer point" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Rohlfing (US Patent No. 5,990,935).

In considering claim 1, Rohlfing discloses all the claimed subject matter, note 1) the claimed (a) calibrating, once for all, determining intrinsic characteristics of the camera lens system while it is mounted on a reference camera and establishing a computer file containing said intrinsic characteristics for obtaining a first calibration which is specific to the lens system and is carried out once for all is met by the real

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camera 40 and lens 42 which have a zoom ring 44 and a focus ring 46 to obtain a calibration datapoint for each and every possible zoom and focus setting of the real camera and entered datapoints into the FuseBox software (Fig. 3, col. 7, line 16 to col. 9, line 65), and 2) the claimed (b) further calibrating, on site, each time the lens system is used, an assembly comprising the on-site camera and the lens system mounted on the on-site camera so as to define transfer functions relating signals from said camera sensors and from lens system sensors delivering signals responsive to values of said adjustable parameters to actual values of said parameters, based on said file and of signals obtained by shooting predetermined characteristic points in a scene observed by the on-site camera is met by the virtual camera and the operator then adjusts the image generator's virtual field of view and virtual nodal point position until the composite image on the monitor showing the virtual environment and the real environment are identical (Figs. 1-3, col. 5, line 59 to col. 7, line 67 and col. 10, line 29 to col. 11, line 23).

In considering claim 2, Rohlfing discloses all the claimed subject matter, note 1) the claimed (a) performing a stage once and for always, comprising determining intrinsic characteristics of the lens, which stage is performed after the lens has been mounted on a camera, and comprising the following steps: taking a plurality of shots with the camera in different pan and tilt orientations and different zoom and focus values for obtaining respective successive images, for each shot, storing output signals from the encoders and positions in the image of at least two points, including a nearer point and a farther point in a scene observed in the shot is met by the real camera 40 and lens 42 which

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have a zoom ring 44 and a focus ring 46 to obtain a calibration datapoint for each and every possible zoom and focus setting of the real camera and entered datapoints into the FuseBox software (Fig. 3, col. 7, line 16 to col. 9, line 65), 2) the claimed drawing up an intrinsic calibration table by comparing values of the output signals and the positions of the points in the images by the camera is met by the FuseBox software which stored the calibration results, for the particular camera and lens combination to be calibrated (Fig. 3, col. 7, line 16 to col. 10, line 28), and 3) the claimed (b) a stage performed on site after the lens has been mounted on a camera to be used on site, comprising the steps of specifying operation conditions and repeating only some of the operations performed in stage (a) solely insofar as they are necessary for resetting origins is met by the virtual camera and the operator then adjusts the image generator's virtual field of view and virtual nodal point position until the composite image on the monitor showing the virtual environment and the real environment are identical (Figs. 1-3, col. 5, line 59 to col. 7, line 67 and col. 10, line 29 to col. 11, line 23) .

In considering claim 3, the claimed wherein the nearer point observed during stage (a) is a point source is met by the nodal point which is the exact point in space from which a perspective scene which are camera "sees" appears to be drawn (Fig. 1B, col. 4, line 49 to col. 5, line 67).

In considering claim 4, the claimed wherein the point source is a laser diode placed at a distance that is greater than and close to a shortest distance for which focussing is possible is met by the nodal point which is the exact point in space from

which a perspective scene which are camera "sees" appears to be drawn (Fig. 1B, col. 4, line 49 to col. 5, line 67).

In considering claim 5, the claimed characterized in that all of the measurements of stage (a) are performed prior to performing all computations which are later performed subsequently and together is met by the calibration process of the real camera 40 and lens 42 which have a zoom ring 44 and a focus ring 46 to obtain a calibration datapoint for each and every possible zoom and focus setting of the real camera and entered datapoints into the FuseBox software (Fig. 3, col. 7, line 16 to col. 9, line 65).

In considering claim 6, the claimed wherein during calculations the lens is represented by a mathematical model making use solely of functions having a single input variable is met by the nodal point moves forward and backward along the optical axis as a function of changing the zoom and/or focus setting (Fig. 1B, col. 4, line 49 to col. 5, line 16).

In considering claim 7, the claimed comprising the steps of converting a set consisting of all data delivered by the sensors and representing a condition of the instrumented camera into an audio signal, and transporting and recording said set in an audio-video environment is met by compositor 50 which coupled to an image generator 59 via a second video cable 54 and also coupled to a display monitor 56 via video cable 58 (Fig. 3, col. 7, lines 49-67).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zhang (US Patent No. 6,437,823 B1) discloses method and system for calibrating digital cameras.

Shapiro et al. (US Patent No. 6,489,989 B1) disclose system, method and article of manufacture for executing a video setup protocol.

Wilf et al. (US Patent No. 6,208,386 B1) disclose method and apparatus for automatic electronic replacement of billboards in a video image.

Scheele et al. (US Patent No. 6,377,298 B1) disclose method and device for geometric calibration of CCD cameras.

Morris et al. (US Patent No. 6,377,300 B1) disclose compact flat-field calibration apparatus.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Trang U. Tran** whose telephone number is **(703) 305-0090**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John W. Miller**, can be reached at **(703) 305-4795**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

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or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 308-HELP.

TT TT
December 19, 2003


MICHAEL H. LEE
PRIMARY EXAMINER